

space being defined at its outer contour by the arachnoid, the cerebrospinal space having a depth of at least approximately 2.0 mm, said improved spinal needle being configured as an elongated, hollow needle having a lumen, said lumen having a first cross sectional area, the improvement comprising:

a relatively small gauge for said hollow needle,

a point on a distal end of said elongated, hollow needle;

a shoulder circumscribing said elongated, hollow needle at the juncture of said point and said elongated, hollow needle;

D a side port in said elongated, hollow needle, said side port being located adjacent said ~~rounded~~ shoulder and having a second cross sectional area substantially equal to said first cross sectional area of said lumen of said elongated hollow needle;

C said side port having a first edge nearest said point, a second edge furthest from said point and parallel side edges therebetween defining the boundary of said side port, the location of said side port with respect to said point, the size of said side port in the axial direction of said needle being of such dimension that when said spinal needle is inserted in a conventional manner in a patient to effect delivery of an anesthetic, the side port is entirely located within the cerebrospinal space.

2.  
24. A spinal needle as set forth in claim 23 wherein said relatively small gauge comprises a needle gauge at least as small as 24 gauge.

5.  
25.

A spinal needle as set forth in claim <sup>1</sup>23 wherein said point on said distal end of said elongated hollow needle is a modified pencil-like point.

3.  
26.

A spinal needle as set forth in claim <sup>2</sup>24 wherein said point on said distal end of said elongated hollow needle is a modified pencil-like point.

7.  
27.

A spinal needle as set forth in claim <sup>1</sup>23 wherein said shoulder is rounded.

4.  
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A spinal needle as set forth in claim <sup>2</sup>24 wherein said shoulder is rounded.

6.  
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A spinal needle as set forth in claim <sup>5</sup>25 wherein said shoulder is rounded.

8.  
30.

An improved spinal needle for the delivery of an anesthetic to the subdura, said subdura comprising a cerebrospinal space surrounding the spine, the cerebrospinal space being defined at its outer contour by the arachnoid, the cerebrospinal space having a depth of at least approximately 2.0 mm, said improved spinal needle being configured as an elongated, hollow needle having a lumen, said lumen having a first cross sectional area, the improvement comprising:

a relatively small gauge for said hollow needle,

a point on a distal end of said elongated, hollow needle;

a shoulder circumscribing said elongated, hollow needle at the juncture of said point and said elongated, hollow needle;

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a side port in said elongated, hollow needle, said side port being located adjacent said ~~rounded~~ shoulder and having a second cross sectional area larger than said first cross sectional area of said lumen of said elongated hollow needle;

said side port having a first edge nearest said point, a second edge furthest from said point and parallel side edges therebetween defining the boundary of said side port, the location of said side port with respect to said point, the size of said side port in the axial direction of said needle being of such dimension that when said spinal needle is inserted in a conventional manner in a patient to effect delivery of an anesthetic, said side port is entirely located within the cerebrospinal space.

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9.  
31. A spinal needle as set forth in claim <sup>8</sup>30 wherein said relatively small gauge comprises a needle gauge at least as small as 24 gauge.

10.  
32. A spinal needle as set forth in claim <sup>8</sup>30 wherein said point on said distal end of said elongated hollow needle is a modified pencil-like point.

12.  
33. A spinal needle as set forth in claim <sup>9</sup>31 wherein said point on said distal end of said elongated hollow needle is a modified pencil-like point.

14.  
34. A spinal needle as set forth in claim <sup>9</sup>31 wherein said shoulder is rounded.

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35. A spinal needle as set forth in claim <sup>10</sup>32 wherein said shoulder is rounded.

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A spinal needle as set forth in claim <sup>12</sup>~~33~~ wherein said shoulder is rounded.

15.  
37.

A spinal needle as set forth in claim <sup>8</sup>~~30~~ wherein said second cross sectional area is at least incrementally larger than said first cross sectional area of said lumen of said elongated hollow needle.

16.  
38.

C | An improved spinal needle for the delivery of an anesthetic to the subdura, said subdura comprising a cerebrospinal space surrounding the spine, the cerebrospinal space being defined at its outer contour by the arachnoid, the cerebrospinal space having a depth of at least approximately 2.0 mm, said improved spinal needle being configured as an elongated, hollow needle having a lumen, said lumen having a first cross sectional area, the improvement comprising:

a hollow needle at least as small as 24 gauge,

a modified pencil-like point on a distal end of said elongated, hollow needle;

a rounded shoulder circumscribing said elongated, hollow needle at the juncture of said point and said elongated, hollow needle;

a side port in said elongated, hollow needle, said side port being located adjacent said rounded shoulder and having a second cross sectional area at least equal to said first cross sectional area of said lumen of said elongated hollow needle;

said side port having a first edge nearest said point, a second edge furthest from said point and parallel side edges therebetween defining the boundary of said side